

## THE CLAIMS

What is claimed is:

1. A method of preparing a surface of a semiconductor wafer to make it epi-ready  
5 which comprises:  
annealing the wafer in an oxidizing atmosphere to condition the surface; and  
polishing the conditioned surface of the wafer with an abrasive based on  
particles of colloidal silica in order to provide a wafer surface that is suitable for  
growing an epitaxial layer thereon.  
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2. The method of claim 1 wherein the surface of the wafer comprises SiC.
3. The method of claim 2 wherein the wafer comprises a SiC surface layer that  
is bonded to a semiconductor substrate.  
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4. The method of claim 1 wherein the annealing is conducted at a temperature  
of about 1000°C to about 1300°C.
5. The method of claim 4 wherein the annealing is conducted for about 1 hour to  
20 about 3 hours.
6. The method of claim 1 which further comprises at least one of deoxidizing the  
wafer surface or utilizing an RCA (SC1, SC2) type chemical cleaning step prior to  
polishing.  
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7. The method of claim 6 wherein the wafer surface is deoxidized with  
hydrofluoric acid.
8. The method of claim 1 further comprising chemically cleaning the wafer  
30 surface prior to polishing.
9. The method of claim 8 wherein the wafer surface is cleaned with hydrofluoric  
acid.
- 35 10. The method of claim 1 wherein the colloidal silica particles used for polishing  
the wafer surface include SYTON W30 type colloidal silica.

11. The method of claim 1 wherein the polishing is conducted with a polishing head that is rotated at about 10 rpm to about 100 rpm.
12. The method of the claim 11 which further comprises applying a pressure of about 0.1 bar to about 1 bar to the polishing head during rotation.
13. The method of claim 1 which further comprises polishing the wafer surface for about 15 minutes to about 30 minutes.
14. The method claim 1 wherein the polishing is conducted with an IC1000 type polishing pad.
15. The method of claim 1 further comprising etching the wafer surface with ions prior to polishing.
16. The method of claim 1 wherein the polishing is conducted to make the wafer surface suitable for homoepitaxy or heteroepitaxy.
17. The method of claim wherein the polishing is conducted to provide a surface roughness of less than 15 angstroms RMS.
18. The method of claim 1 which further comprises depositing an epitaxial layer upon the polished wafer surface.